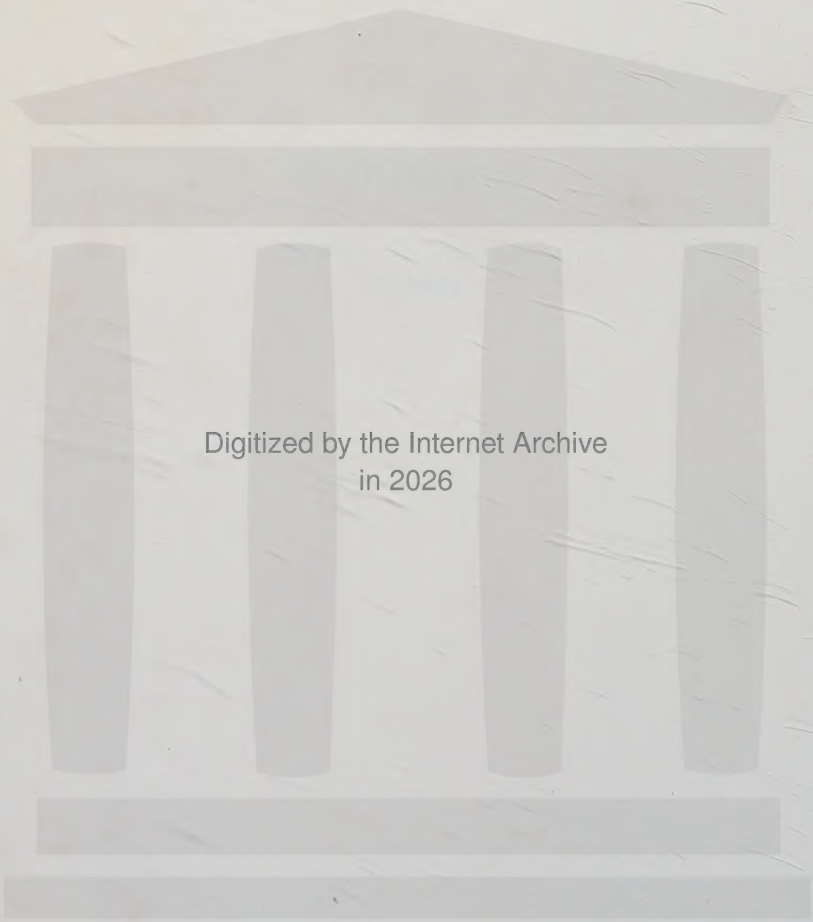
5856-123

EXPERIMENTAL CELL RESEARCH

VOLUME 48 · 1967

PERIODICAL

UNIVERSITY OF HAWAII
LIBRARY



Digitized by the Internet Archive
in 2026

https://archive.org/details/experimental-cell-research_1967_48_contents

EXPERIMENTAL CELL RESEARCH

Published under the auspices of

THE INTERNATIONAL SOCIETY FOR CELL BIOLOGY

EXECUTIVE EDITORS

T. CASPERSSON · T. GUSTAFSON · D. MAZIA

ASSOCIATE EDITOR

N. R. RINGERTZ

TECHNICAL EDITOR

VERA RUNNSTRÖM-REIO

EDITORIAL OFFICE

KAROLINSKA INSTITUTET, STOCKHOLM 60, SWEDEN

EDITORS

J. BRACHET · M. CHÈVREMONT · A. ENGSTRÖM

E. FAURÉ-FREMIET · G. FOLEY · G. KLEIN · O. LINDBERG · G. MONTALENTI

A. MOSCONA · J. PAUL · SIR JOHN RANDALL · J. RUNNSTRÖM

F. O. SCHMITT · C. H. WADDINGTON · R. W. G. WYCKOFF

VOLUME 48 · 1967

ACADEMIC PRESS, New York and London

COPYRIGHT, © 1967, BY ACADEMIC PRESS INC.

All Rights Reserved

No part of this book may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Printed in Sweden

Almqvist & Wiksells

BOKTRYCKERI AB

UPPSALA 1967

689491

TABLE OF CONTENTS

NUMBER 1, OCTOBER 1967

ELIASSON, E., Repression of arginase synthesis in Chang liver cells 1
BASTIA, D. and SWAMINATHAN, M. S., Ultrastructure of interphase chromosomes 18
PAULUS, J. M. and MEL, H. C., Viability studies on megakaryocytes in mechanically and enzymatically suspended rat bone marrow 27
OFTEBRO, R. and WOLF, I., Mitosis of bi- and multinucleate HeLa cells 39
BARKA, T., Stimulation of deoxyribonucleic acid synthesis in the salivary gland by isoproterenol: The effect of sex 53
BEESON, J. L. and TRIPLETT, E. L., Localization and characterization of rat and chicken histones 61
RAO, P. N. and ENGELBERG, J., Structural specificity of estrogens in the induction of mitotic chromatid non-disjunction in HeLa cells 71
PRICE, Z. H., The micromorphology of zeiotic blebs in cultured human epithelial (HEp) cells 82
MITSUHASHI, J., An observation on the formation of a binucleate cell in the primary cultures of leafhopper embryonic cells 93
RINGERTZ, N. R., ERICSSON, J. L. E. and NILSSON, O., Macronuclear chromatin structure in *Euplotes* 97
PETERSON, R. D. A., FICHTELIUS, K.-E. and LIDÉN, S., An inquiry into the possible reutilization of follicular cell DNA by the mouse oocyte 118
LEVEDAHL, B. H., The effect of CO_2 on succinate metabolism in a bleached *Euglena* 125
RASMUSSEN, L., Effects of metabolic inhibitors on *Paramecium aurelia* during the cell generation cycle 132

PRELIMINARY NOTES

MIRONESCU, ST. and DRAGOMIR, C., Number, volume, surface and inner structure of the rat liver cells nucleoli 140
REPSIS, L. C., Acid-soluble nuclear proteins in developmental stages of *Lytechinus variegatus* . . 146
OWCZARZAK, A., *In vitro* culture of large areas of membranous biological structures 149
TERAO, K., The effect of aflatoxin on chick embryo liver cells 151
PERRY, L. D. and SWARTZ, F. J., A subpopulation of cells with an extended G2 period in normal adult mouse liver 155
PENNIALL, R., HOLBROOK, J. P. and DAVIDIAN, N. McC., Studies of phosphorus metabolism by isolated nuclei. IX. Nucleolar nucleosidediphosphatase activity 158
JAPUNDŽIĆ, M., KNEŽEVIĆ, B., DJORDJEVIĆ-ČAMBA, V. and JAPUNDŽIĆ, I., The influence of phenobarbital-NA on the mitotic activity of parenchymal liver cells during rat liver regeneration 163
COLOMBO, G., Photosensitization of sea-urchin sperm to long wave ultraviolet light by psoralen 167
HALPERIN, W., Population density effects on embryogenesis in carrot cell cultures 170
TIMOURIAN, H. and UNO, J., Protein synthesis requirements for the first two cleavages in sea urchin eggs 173
WEINSTEIN, D. and LEBOWITZ, M., A medium for increased plating efficiency of the WI-38 human diploid fibroblast culture 176
DORÉ, D. and COUSINEAU, G. H., Acid phosphatase analysis in sea urchin eggs and blastulae . . 179
SCHUETZ, A. W., Variable sensitivity of starfish ovarian tissue to radial nerve factor 183
PRUDHOMME, J. C., GILLOT, S. et DAILLIE, J., Effets de l'actinomycine D sur la synthèse de l'ADN et de l'ARN dans la glande séricigène de *Bombyx mori* L. 186
CARTER, S. B., Haptotactic islands: a method of confining single cells to study individual cell reactions and clone formation 189
MORGAN, J., FYFE, D. and WOLPERT, L., Isolation of microfilaments from *Amoeba proteus* . . . 194
JUBINVILLE, F., BAL, A. K., INOUE, S. and COUSINEAU, G. H., Fixation of sea urchin eggs: an improved technique for the study of ultrastructure 198
PAVAN, C. and PERONDINI, A. L. P., Heterozygous puffs and bands in *Sciara ocellaris* Comstock (1882) 202

FRANKS, D., LISKE, R. and GURNER, B. W., A and B blood group antigens in continuous cell lines 205
MORRIS, W. T., *In vivo* studies on the optimum time for the action of colchicine on mouse lymphoid tissue 209
CONE, C. D., JR., Growth of somatic cell clones in micro lagoons 212
MORRIS, N. R., CRAMER, J. W. and RENO, D., A simple method for concentration of cells in the DNA synthetic period of the mitotic cycle 215
BOPP, M., Internodienstreckung bei dikotylen Pflanzen und DNS-Synthese 218
AKETA, K., Isolation of the plasma membrane from the sea urchin egg 222
STERN, S. and METZ, CH. B., Electrophoresis of sperm absorbed univalent sea urchin fertilizin 224
YOSHIKURA, H., HIROKAWA, Y. and YAMADA, M., Synchronized cell division induced by medium change 226
BURNS, E. R., Tumor cell–tumor cell emperipolesis 229
HJELM, K. K. and ZEUTHEN, E., Synchronous DNA synthesis following heat-synchronized cell division in Tetrahymena 231
BRACHET, J., Effects of actinomycin, puromycin and cycloheximide upon the maturation of amphibian ovocytes 233
JEON, K. W. and LORCH, I. J., Unusual intra-cellular bacterial infection in large, freeliving amoebae 236
SHIMADA, Y., PIDDINGTON, R. and MOSCONA, A. A., Experimentally induced increases in glutamine synthetase in the optic tectum in the embryo and in culture 240
TRITSCH, G. L., BELL, J. A. and GRAHL-NIELSEN, G., The optimum protein concentration for growth stimulation of axenic cultures of malignant mammalian cells 244
INOUE, S., HARDY, J. P., COUSINEAU, G. H. and BAL, A. K., Fertilization membranes: structure analysis with the surface replica method 248

NUMBER 2, OCTOBER 1967

SATIR, B., Effect of actinomycin D on cultural growth phases and on the pattern of total RNA synthesis in *Tetrahymena* 253
CLARK, HF and KARZON, D. T., Terrapene heart (TH-1), a continuous cell line from the heart of the box turtle *Terrapene carolina* 263
CLARK, HF and KARZON, D. T., Acquired tolerance to elevated temperatures in a poikilothermic cell line (Terrapene heart, HT-1) 269
JACOB, J., An electron microscope autoradiographic study of the site of initial synthesis of RNA in the nucleolus of Smittia 276
OLMSTED, C. A., A physico-chemical study of fetal calf sera used as tissue culture nutrient correlated with biological tests for toxicity 283
LEAK, L. V. and BURKE, J. F., The application of freeze-fracture replication in studying the fine structure of a blue-green alga 300
MALENKOV, A. G., BOGATYREVA, S. A., BOZHKOVA, V. P., MODJANOVA, E. A. and VASILIEV, JU. M., Reversible alterations of the surface of ascites tumour cells induced by a surface-active substance, Tween 60 307
SCHACHTSCHABEL, D. O. and FERRO, J. J., The effect of 4-aminopyrazolo (3,4-*d*)pyrimidine and guanine on Ehrlich ascites cells in culture 319
HOLM, G., The *in vitro* cytotoxicity of human lymphocytes: comparison with other cells . . 327
HOLM, G., The *in vitro* cytotoxicity of human lymphocytes: the effect of metabolic inhibitors . 334
KITANO, Y. and KURODA, Y., Effects of thyroxine, vitamin A and HeLa cells on differentiation of aggregates of dissociated embryonic chick skin cells *in vitro* 350
DIPAOLO, J. A. and DONOVAN, P. J., Properties of Syrian hamster cells transformed in the presence of carcinogenic hydrocarbons 361
KIMBALL, R. F., Persistent intraclonal variations in cell dry mass and DNA content in *Paramecium aurelia* 378
GORDON, M. and BARRNETT, R. J., Fine structural cytochemical localizations of phosphatase activities of rat and guinea pig 395
VON DER DECKEN, A., The distribution of constituents and enzyme activities in subfractions of liver microsomes from non-starved rats 413
KISCHER, C. W. and HNILICA, L. S., Analysis of histones during organogenesis 424

BLACK, R. E., BAPTIST, E. and PILAND, J., Puromycin and cycloheximide inhibition of thymidine incorporation into DNA of cleaving sea urchin eggs 431
ITO, E. and MOORE, G. E., Characteristic differences in clones isolated from an S37 ascites tumor *in vitro* 440
ARCOS, J. C., STACEY, R. E., MATHISON, J. B. and ARGUS, M. F., Kinetic parameters of mitochondrial swelling. Effect of animal age. Tissue distribution of the mitochondrial "contractile protein" 448
WHITFIELD, J. F., YOUDALE, T. and PERRIS, A. D., Early postirradiation changes leading to the loss of nuclear structure in rat thymocytes 461
TARBUTT, R. G., A study of erythropoiesis in the rat 473
MATTYSSE, A. G. and TORREY, J. G., DNA synthesis in relation to polyploid mitoses in excised pea root segments cultured *in vitro* 484
AMSTERDAM, D., BEREK, J., ZAHALSKY, A. C. and LAZARUS, S. S., Differential inhibition by 4-nitroquinoline-N oxide in serially propagated mammalian cell lines 499

NUMBER 3, DECEMBER 1967

NADAL, C., Polyploïdie hépatique du rat. III. Etude des nucléoles des cellules hépatiques du rat normal 507
NADAL, C. et ZAJDELA, F., Polyploïdie hépatique du rat. IV. Variations expérimentales du volume nucléolaire des hépatocytes et leurs mécanismes de régulation 518
TIESLER, E., HEICKE, B. und DIENER, H. U., Vergleich der wachstumsfördernden Wirkung von speziesverschiedenen Seren auf Zellkulturen und deren DNase-Aktivitäten. 529
DOIDA, Y. and OKADA, S., Synchronization of L5178Y cells by successive treatment with excess thymidine and colcemid 540
BAILLY, S., Etude cytophotométrique de la teneur en acides nucléiques des chromosomes métaphasiques de l'amphibien urodèle *Pleurodeles waltlii* Michah 549
SWARTZ, F. J., Polyploidization of liver after partial hepatectomy in the dwarf mouse and hypophysectomized rat: Effect of extended regenerative periods 557
HARRIS, P., Structural changes following fertilization in the sea urchin egg. Formation and dissolution of heavy bodies 569
NORRBY, K., JOHANNISSON, G. and MELLGREN, J., Proliferation in an established cell line 582
GALAND, P., RODESCH, F., LEROY, F. and CHRETIEN, J., Radioautographic evaluation of the estrogen-dependent proliferative pool in the stem cell compartment of the mouse uterine and vaginal epithelia 595
DEWEY, W. C. and THOMPSON, R. P., Distribution of DNA in Chinese hamster cells 605

PRELIMINARY NOTES

JOHNSON, B. F. and RUPERT, C. M., Cellular growth rates of the fission yeast, *Schizosaccharomyces pombe* and variable sensitivity to 2-deoxyglucose 618
FISHER, H. W. and COOPER, T. W., Electron microscope observations on the nuclear pores of HeLa cells 620
NICANDER, L. and HELLSTRÖM, B., Increased thickness of the inner mitochondrial membrane during sperm maturation in the domestic rooster 622
PENTTILÄ, A. and JANSSON, S. E., 5-Hydroxytryptamine release and associated fluorescence and morphological changes of rat peritoneal mast cells *in vitro* 625
KIHLMAN, B. A. and HARTLEY, B., Hydroxyurea: Effect on *Vicia* chromosomes previously exposed to X-rays or to radiomimetic chemicals 629
AGRELL, I. P. S. and KARLSSON, B. W., The action of phytohaemagglutinin upon mitotic inhibitors in the nutrient medium for free living amoebae. 634
EKHOLM, R. and ELMQVIST, L-G., Inhibition of endocytosis in the thyroid follicle cells by actinomycin 640
BRINSTER, R. L., Lactate dehydrogenase activity in human, squirrel monkey and rhesus monkey oocytes 643

MOSCONA, A. A., SAENZ, N. and MOSCONA, M. H., Kinetics of enzyme induction in embryonic cells 646
ROONEY, D. W. and EILER, J. J., Synchronization of *Tetrahymena* cell division by multiple hypoxic shocks 649
STUBBLEFIELD, E. and MURPHREE, S., Synchronized mammalian cell cultures. II. Thymidine kinase activity in colcemid synchronized fibroblasts 652
SURA, S. N., CHERNYAKHOVSKAYA, I. Yu., KADAGHIDZE, Z. G., FUKS, B. B. and SVET-MOLDAVSKY, G. J., Cytochemical study of interaction between lymphocytes and target cells in tissue culture 656
LINDHOLM, L. and BRITTON, S., Possible presence of DNA in intercellular bridges 660
UNUMA, T., SMETANA, K. and BUSCH, H., A morphologic study on the chromatin areas associated with the nucleolus 665
BARTSCH, H. D., HABERMEHL, K.-O. and DIEFENTHAL, W., Chromosomal damage after infection with poliomyelitis virus 671
RABINOWITZ, Y., LUBRANO, T., WILHITE, B. and DIETZ, A. A., Lactic dehydrogenase of cultured lymphocytes: response to environmental conditions 675
RADLEY, J. M., Changes in ploidy in the rat submaxillary gland induced by isoprenaline . . 679
THERKELSEN, A. J. and BRUUN PETERSEN, G., Variation in glucose-6-phosphate dehydrogenase in relation to the growth phase and frequency of sex chromatin positive cells in cultures of fibroblasts from normal human females and A 48-XXXY male 681
GREEN, R. F., KOHL, D. M. and FLICKINGER, R. A., The effect of additional RNA polymerase upon the amounts and kinds of RNA synthesized *in vitro* 685
MAUERSBERGER, B. and ZORN, C., The effect of $CuSO_4$ on the growth of mammalian cell cultures 688
RUNNSTRÖM, J., Structural changes of the chromatin in early development of sea urchins . . . 691